

# NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

September 14, 2010

# Precipitation and Snowpack

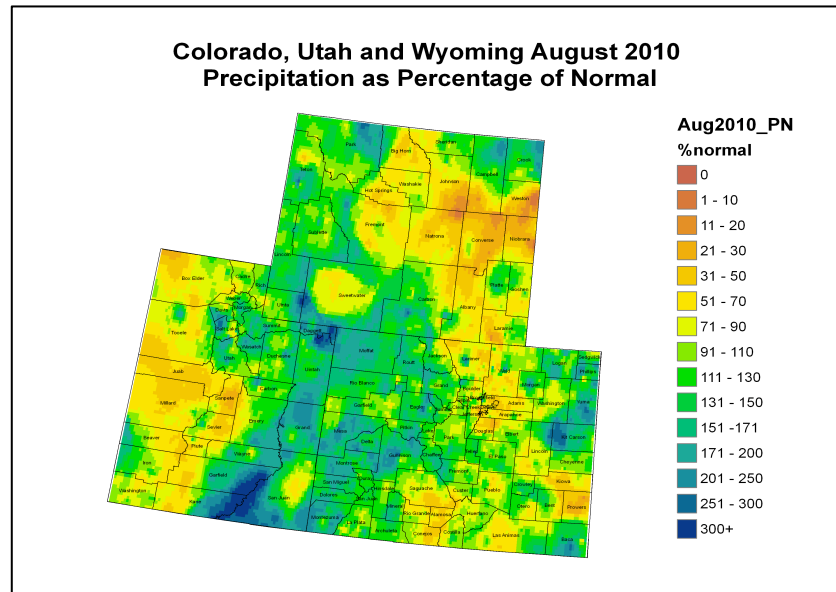


Fig. 1: August precipitation as percent of average

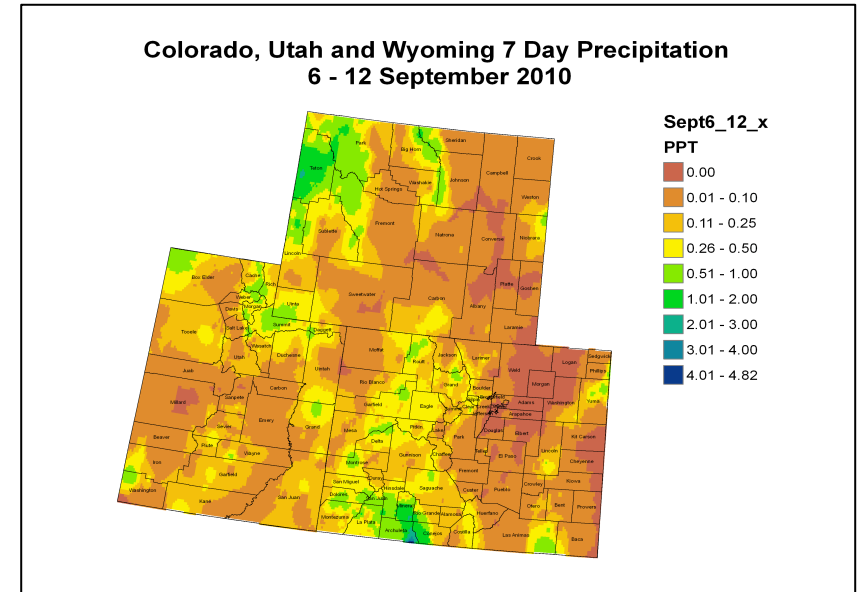


Fig. 2: September 6 – 12 precipitation in inches

For the month of August, the majority of the Upper Colorado River Basin (UCRB) received near or above average precipitation, with the southern portion of the basin receiving more than double their August average (Fig. 1). San Juan County, Utah and Sweetwater County, Wyoming both saw below average amounts of precipitation last month.

The start of September has been abnormally dry for most of the UCRB, with the majority of the precipitation in the basin falling in the past week (Fig. 2). The heaviest amounts of precipitation fell in the San Juan basin in southwestern CO, and in the Lower Green River basin in northeastern UT. Amounts of around half an inch fell throughout the Colorado mountains.

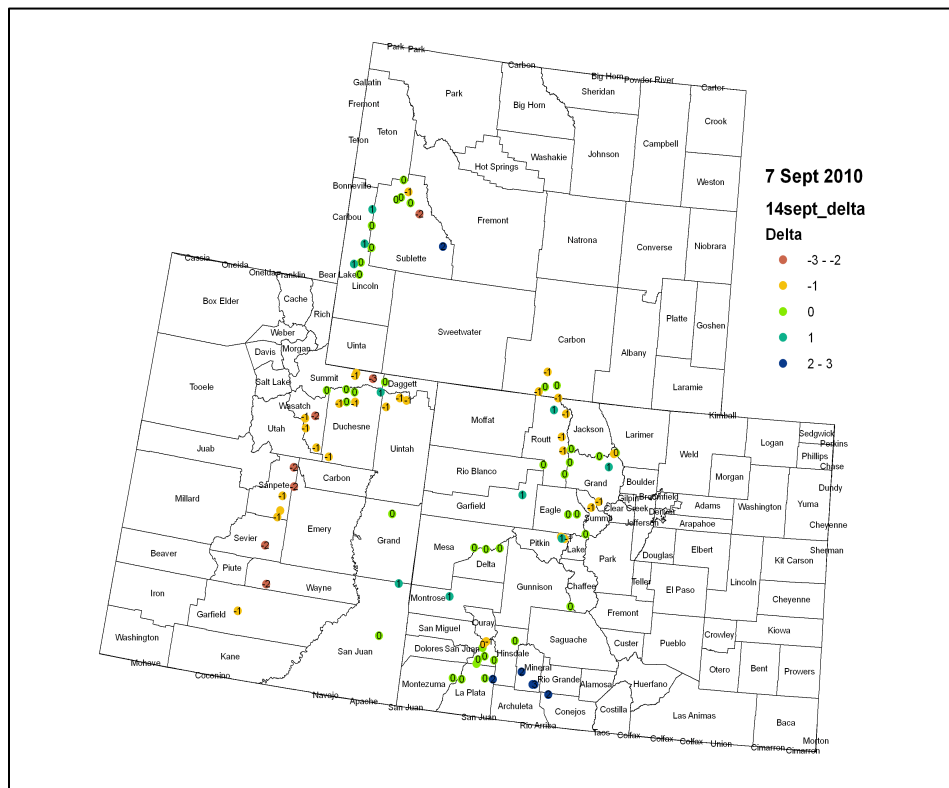


Fig. 3: Snotel WYTD precipitation percent of average change from last week.

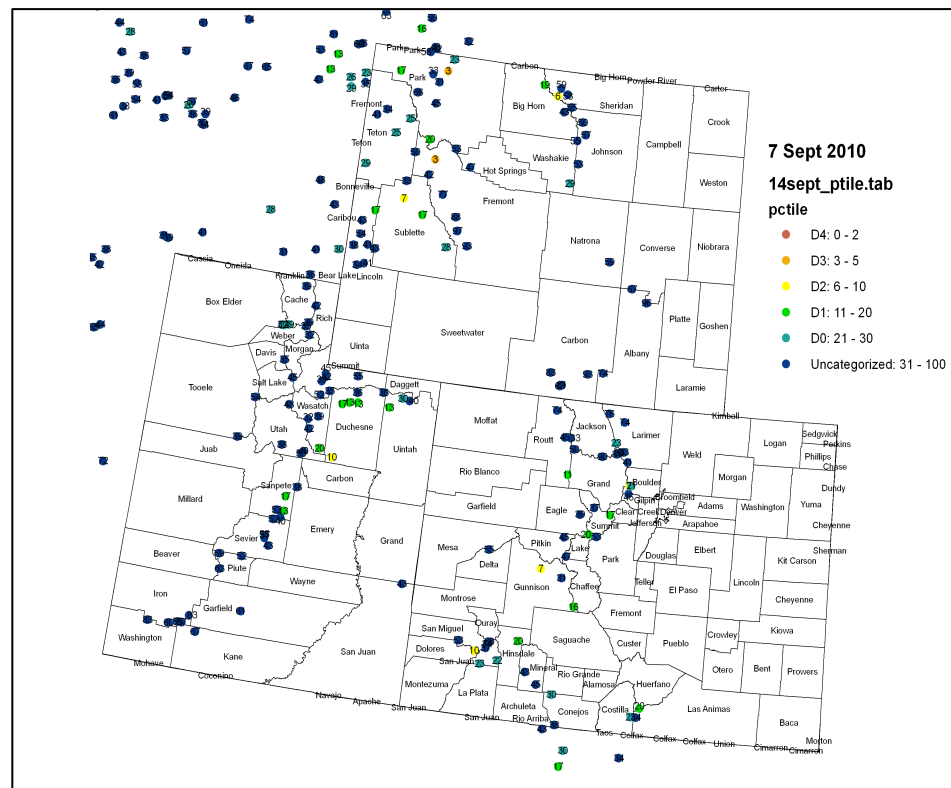


Fig. 4: Snotel WYTD precipitation percentiles (50% is median, 21-30% is Drought Monitor's D0 category).

Most of the UCRB saw no change or decreases in water-year-to-date (WYTD) precipitation percents of average from last week (Fig. 3). Most of the western boundary of the UCRB in Utah experienced 1 – 2% decreases with little to no changes around the headwaters of the Colorado River and in Wyoming. Only along the San Juan/Rio Grande basin boundary were there increases in precipitation percents of average from last week.

Water-year-to-date (WYTD) percentiles for the Snotel sites in the UCRB show the lowest values corresponding with the locations of current abnormal dryness (D0 or below the 30<sup>th</sup> percentile) on the U.S. Drought Monitor map—in the Rio Grande basin to the south, the Upper and Lower Green River basins and near the Colorado headwaters region (Fig. 4). The remaining Snotel sites show percentiles high enough to not be considered for drought designations.

# Streamflow

The majority of USGS streamgages in the UCRB are still reporting normal (25 – 75<sup>th</sup> percentile range) or above normal 7-day average streamflows as of September 13<sup>th</sup> (Fig. 5). The San Juan River in the south is in good condition. There is a heavy concentration of gages showing below normal streamflows in the Lower Green River basin. There are also several gages reporting below normal flows around the headwaters of the Colorado River and along the White River.

Hydrographs along the Colorado River and San Juan River show slight increases in streamflows over the past week (Fig. 6). Both sites (Colorado River at the CO-UT state line and San Juan River at Bluff, UT) are well within the normal range for this time of year. The streamgage on the Green River near Green River, UT shows a continuing decrease toward base flow (Fig. 6), but also is within the normal range for this time of year.

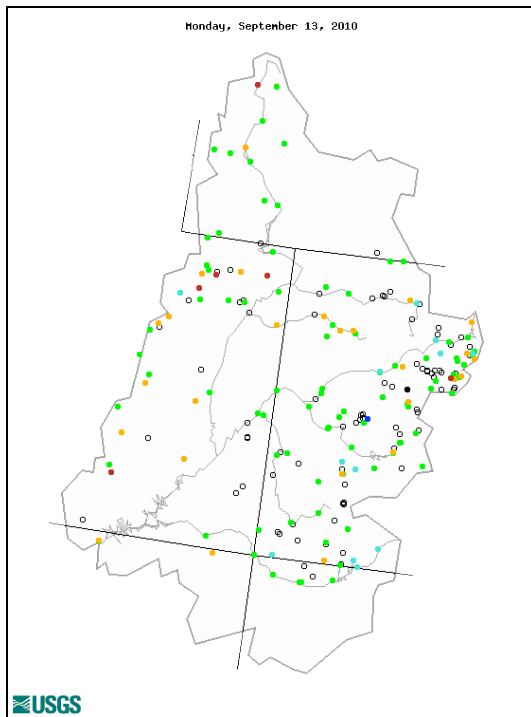
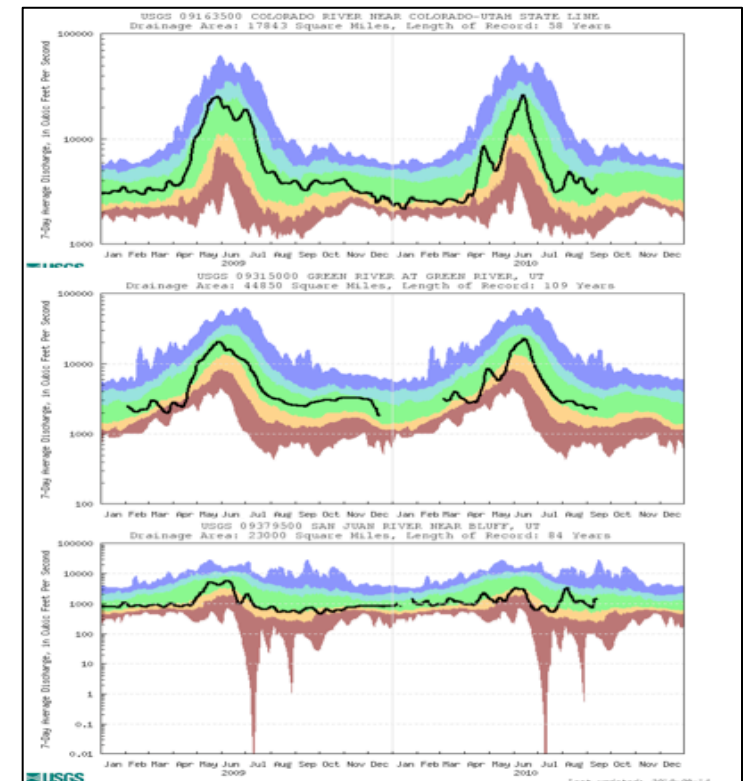


Fig. 5: USGS 7-day average streamflow compared to historical streamflow for September 13<sup>th</sup> in the UCRB.

Fig. 6: USGS 7-day average discharge over time at the CO-UT state line (top), Green River, UT (middle) and Bluff, UT (bottom).



## Water Supply and Demand

Temperatures were below average last week throughout the UCRB. The Front Range from the CO-NM border, extending north into southern WY continued to experience above average temperatures and very dry conditions. Soil moisture conditions (and VegDRI maps) continue to deteriorate in northern CO and southern WY around the North Platte and Yampa-White basins.

All of the major reservoirs in the UCRB continued to see decreases in lake levels over last week, which is normal for this time of year. Flaming Gorge, Lake Granby, Green Mountain, McPhee, and Navajo Reservoirs all remain above average. Lake Dillon only experienced a very slight decrease and remains above average. Blue Mesa levels dropped over 13,000 Acre Feet over the past week and is now slightly below the September average. Lake Powell dropped about 50,000 Acre Feet over the past week and is around 77% of average and 63% of capacity. Fall projections suggest that inflow volumes into Lake Powell will remain below 90% of average.

## Precipitation Forecast

Dry conditions will continue well into the extended period for the Upper Colorado River Basin as a persistent ridge over west Texas maintains dry southwesterly flow over the area. A few minor disturbances are forecast to move across the region beginning on Wednesday, with another expected sometime late in the weekend; however, with moisture being so sparse there will likely be little if any precipitation realized from these features. The best chance of showers will remain confined to the higher peaks in Utah and along the continental divide. For the long term expect more dry weather as dry southwest flow strengthens into the weekend and most disturbances remain well to the north.

# Drought and Water Discussion

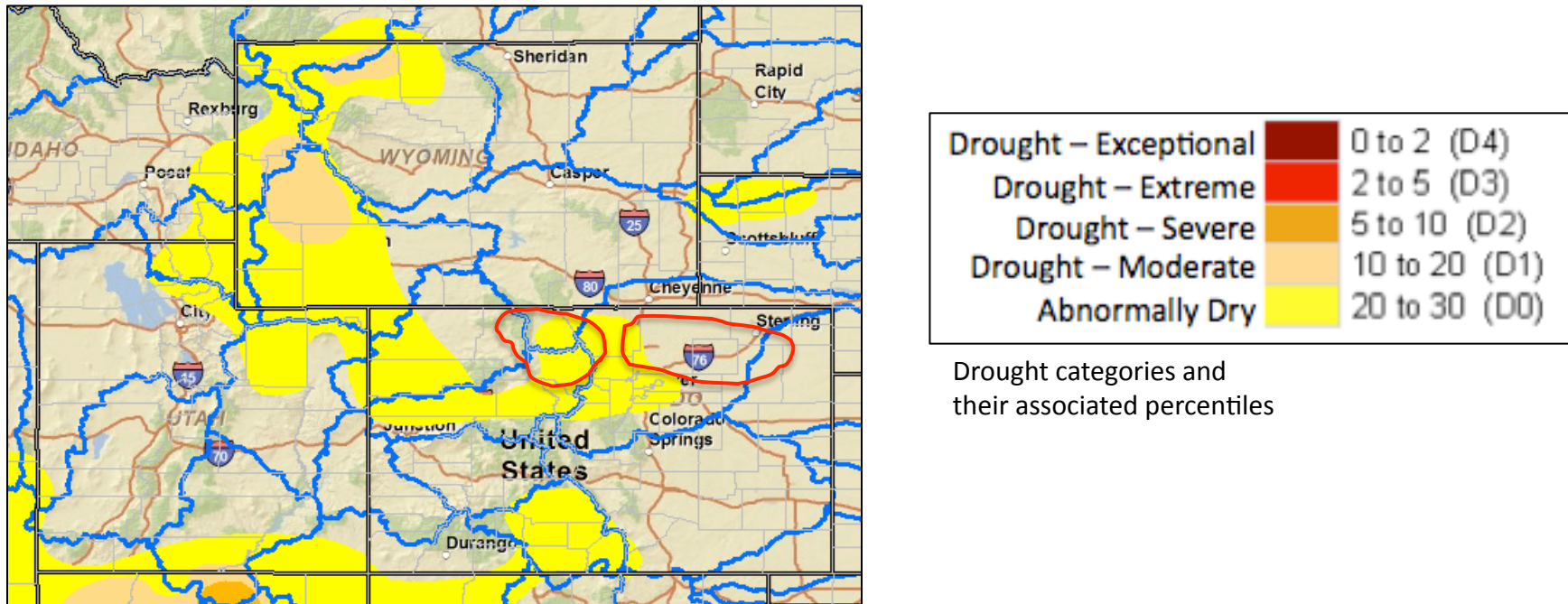


Fig. 7: September 7 release of U.S. Drought Monitor for the UCRB

No local experts have suggested changes for the UCRB for the current U.S. Drought Monitor map (Fig. 7) and status quo is recommended for that area. Changes are being suggested for the southern portion of the North Platte basin and the northern portion of the South Platte basin (red lines on Fig 7). VIC soil moisture percentiles show abnormally dry soils in the North Platte basin, and this agrees well with the VegDRI product. The South Platte basin (particularly around the WY-CO-NE border) is showing precipitation deficits and 60-day SPI values of less than -1.

These regions should be evaluated for possible D0 expansion. The Wyoming State Climate Office suggests holding off on expansion this week, because this is a particularly slow time, precipitation-wise, for this area normally—but to keep a close eye on this area for next week. However, Klaus Wolter from the NOAA office in Boulder, CO suggests that the timing is right for the D0 expansion, and that this expansion could be even larger than what is depicted in Fig. 7.